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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,599

07/02/2007

Edward Nelson Fuller

1-24872

2696

4859

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02/16/2011

MACMILLAN SOBANSKI & TODD, LLC

ONE MARITIME PLAZA FIFTH FLOOR

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EXAMINER

ROST, ANDREW J

ART UNIT

PAPER NUMBER

3753

MAIL DATE

DELIVERY MODE

02/16/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/589,599

**Applicant(s)**

FULLER, EDWARD NELSON

**Examiner**

Andrew J. Rost

**Art Unit**

3753

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 9-12, 14, 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 13 and 15-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/16/2006, 9/30/2009, 10/28/2010 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-944)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date See Continuation Sheet
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :1/3/2007, 6/15/2009, 9/23/2009, 10/20/2009, 3/31/2010, 5/21/2010, 5/21/2010, 5/21/2010, 8/31/2010, 10/28/2010, 12/30/2010, 12/30/2010

### **DETAILED ACTION**

1. This action is in response to the amendment filed 10/28/2010. Claims 1-20 are pending.

### ***Election/Restrictions***

2. Claims 9-12, 14, 19 and 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/28/2010.
3. Applicant's election with traverse of species II in the reply filed on 10/28/2010 is acknowledged. The traversal is on the ground(s) that there is not a serious search burden. This is not found persuasive because the inventions require a different field of search (i.e., employing different search queries).

The requirement is still deemed proper and is therefore made FINAL.

### ***Information Disclosure Statement***

4. The information disclosure statements filed 1/03/2007, 6/15/2009, 9/23/2009, 10/20/2009, 3/31/2010, 5/21/2010, 5/21/2010, 5/21/2010, 8/31/2010, 10/28/2010, 12/1/2010, and 12/30/2010 are acknowledged by the examiner.

### ***Drawings***

5. The drawings were received on 10/28/2010. These drawings are not acceptable.

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the a first source of fluid and a reservoir and a load (claim 15) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation "the movable portion of the first valve" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "the body" in line 3. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-8, 13 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imhof (4,543,875) in view of Hunnicutt (6,694,998).

Regarding claim 1, Imhof discloses a pilot valve (30) to control a first valve (10) wherein the first valve (10) is moved to a first position when there is a fluid flow from a first fluid source (x) through the chamber of the pilot valve and the first valve is moved to a second position when there is a fluid flow from the first valve to a first fluid reservoir (y). Imhof does not disclose the pilot valve to be a microvalve. However, Hunnicutt discloses a microvalve assembly having a plurality of layers (14, 16, 18) defining a body having a chamber (layer 16 defines a chamber) and a plurality of ports (20, 26 and 30),

a movable portion (40) positioned within the chamber wherein the movable portion is selectively movable (via the pressure on the surface 80) to control a flow of fluid.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the pilot valve of Imhof as a microvalve as taught by Hunnicutt in order to provide a control valve that is smaller and requires less material while still being able to control the operation of a main valve.

In regards to claim 2, Imhof discloses the first fluid source (x) and the first fluid reservoir (y) and wherein a movable portion of the pilot valve (as taught by Hunnicutt) is movable to control the position of the first valve.

In regards to claim 3, Imhof discloses the fluid flow to a chamber (chamber connected to passage 42) actuates the first valve (connects port P with port A) and fluid flow from the chamber deactuates the first valve (spring biases the valve to block port P from port A).

In regards to claim 4, Imhof discloses a load (connected to port A/B) and a second fluid reservoir (connected to port T).

In regards to claim 5, Imhof discloses the first valve controls a fluid flow from a second source (connected to port P) to the load.

In regards to claim 6, Imhof discloses the first valve wherein the load port is connected to the second reservoir when the first valve is deactuated (based on the bias of the spring).

Regarding claims 7, 15 and 17, Imhof discloses a valve assembly having a pilot valve (30) to control a first valve (10) wherein the first valve (10) is moved to a first

position when there is a fluid flow from a first fluid source (x) through the chamber of the pilot valve and the first valve is moved to a second position when there is a fluid flow from the first valve to a first fluid reservoir (y) wherein the first valve has an upper section that contains a plurality of ports (x, y) wherein ports (x, y) are in communication with a pilot valve, a middle section includes a connection to the port (x, y) that lead to the pilot valve, and a lower section that includes a first source port (x), a first reservoir port (y), a second source port (P) and a load port (A/B). Imhof does not disclose the pilot valve to be a microvalve and that the upper section, the middle section and the lower section are different plates. However, Hunnicutt discloses a microvalve assembly having a plurality of layers (14, 16, 18) defining a body having a chamber (layer 16 defines a chamber) and a plurality of ports (20, 26 and 30), a movable portion (40) positioned within the chamber wherein the movable portion is selectively movable (via the pressure on the surface 80) to control a flow of fluid. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the pilot valve of Imhof as a microvalve and the first valve as having a plurality of layers as taught by Hunnicutt in order to provide a control valve that is smaller and requires less material while still being able to control the operation of a main valve and in order to provide the body of the first valve as being easier to manufacture (i.e., in multiple layers).

In regards to claims 8 and 16, Imhof discloses the first valve to be macro-sized.

In regards to claim 13, Imhof discloses the movable portion of the first valve (12) is positioned within a layer defining the body (10) and is configured for axial movement.



In regards to claim 18, Imhof discloses the spool (12) is a round spool.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. McMillan (4,354,527) discloses a pilot controlled spool valve.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew J. Rost whose telephone number is 571-272-2711. The examiner can normally be reached on 7:00 - 4:30 M-Th and 7:00 - 12:00 Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Hepperle can be reached on 571-272-4913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. J. R./  
Examiner, Art Unit 3753

/John K. Fristoe Jr./  
Primary Examiner, Art Unit 3753